[JP,05-202382,A(1993)]

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FULL CONTENTS CLAIM + DETAILED DESCRIPTION TECHNICAL FIELD PRIOR ART EFFECT OF THE INVENTION TECHNICAL PROBLEM MEANS EXAMPLE

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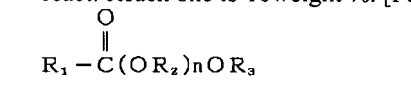
FULL CONTENTS

[Claim(s)]
[Claim 1] (a) A trivalent aluminium ion, gallium ion, an indium ion, Under existence of the catalyst which consists of magnesium oxide by which one or more sorts of the metal ion chosen from a thallium ion, cobalt ion, a scandium ion, a lanthanum ion, and divalent manganese ion were added The nonionic surface active agent shown by ** 1 obtained by having made aliphatic alkylester and alkylene oxide react: Reach one to 10weight %. [Formula 1]



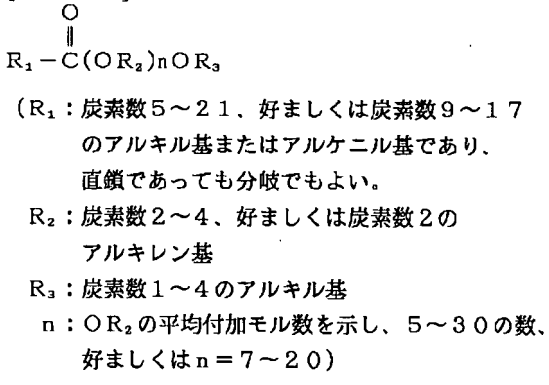
（R_1：炭素数５～２１のアルキル基
またはアルケニル基
R_2：炭素数２～４のアルキレン基
R_3：炭素数１～４のアルキル基
n：OR_2の平均付加モル数を示し、
５～３０の数）

(b) Calcium capture chelate builder : the detergent composition characterized by containing 1 to 40 weight %.

[Detailed Description of the Invention]
[0001]
[Industrial Application] This invention is low-foaming property and relates to the detergent composition excellent in detergency.
[0002]
[Description of the Prior Art] An automatic dishwasher is widely used also at ordinary homes from a lack in the conciseness of clearing up after a meal, or the hand roughness by washing etc. For this reason, many proposals about the cleaning agent for automatic dishwashers are made until now. For example, the alkaline cleaning agent containing polyether polyol is indicated by the JP,59-15360,B number. However, although it has the advantage that this polyether polyol containing detergent is low-foaming property, the cleaning effect over detergency, especially oil contamination is inferior.
[0003] On the other hand as a thing for the purpose of the improvement in detergency, what used surface active agents, such as alkoxy ether of lower alcohol, for JP,S58-147500,A is known. However, these surface active agents have inadequate low-foaming property, and when it uses for an automatic dishwasher for home use as a penetrant remover, the blister piece at the time of a rinse produces the

[Translation done.]

problem of being bad. Moreover, the alkali chemicals with which an effect is accepted to oil dirt removing, such as triglyceride, react with the calcium ion in wash water, insoluble matters, such as calcium carbonate, are produced, and since it adheres to tableware and is rough, a feeling of workmanship may fall remarkably. Furthermore, if these cleaning agents are saved by powdered voice, the problem that flowability falls and pellet[solidification and]-izes often arises.
[0004] About the ester type nonionic surface active agent which consists of fatty acid polyoxyalkylene alkyl ether on the other hand The utilization (JP,S59-69135,A) as the solubilizing agent or emulsifier of the utilization (JP,S53-24930,B) as solvents, such as fats and oils, a wax, a varnish, and a coating material, the activity (JAOCS56:873 (1979)) as a penetrant, and steroid etc. has been considered.
[0005]
[Problem(s) to be Solved by the Invention] When foaming of this invention at the time of washing is very low, and it excels in detergency and the feeling of workmanship after washing and is considered as the shape of a powder, flowability offers a good detergent composition.
[0006]
[Means for Solving the Problem] The detergent composition of this invention is characterized by containing the following (a) and (b) components.
[0007] (a) A trivalent aluminium ion, gallium ion, an indium ion, Under existence of the catalyst which consists of magnesium oxide by which one or more sorts of the metal ion chosen from a thallium ion, cobalt ion, a scandium ion, a lanthanum ion, and divalent manganese ion were added The nonionic surface active agent shown by ** 2 obtained by having made aliphatic alkylester and alkylene oxide react: 1 to 10 weight %.
[0008]
[Formula 2]



（R_1：炭素数５～２１、好ましくは炭素数９～１７
のアルキル基またはアルケニル基であり、
直鎖であっても分岐でもよい。
R_2：炭素数２～４、好ましくは炭素数２の
アルキレン基
R_3：炭素数１～４のアルキル基
n：OR_2の平均付加モル数を示し、５～３０の数、
好ましくはn＝７～２０）

[0009] (b) Calcium capture chelate builder : 1 to 40 weight %.
[0010]
[Embodiment of the Invention] (a) as an ester type nonionic surface active agent of a component aluminum ion (trivalence), Ga ion (trivalence), In ion (trivalence), Tl ion (trivalence), Under existence of the catalyst which consists of magnesium oxide by which one or more sorts of the metal ion chosen from Co ion (trivalence), Sc ion (trivalence), La ion (trivalence), and Mn ion (divalence) were added The condensate acquired by the one-step method to which aliphatic alkylester and alkylene oxide are made to react is used.
[0011] (a) Although a full account is given by the Tokuganhei3-63904 Description, explain briefly the manufacture method of the nonionic surface active agent of a component below. 0.1 to 30weight % of the amount of catalysts of the amount of the metal ion added in magnesium oxide is desirable, and it is 0.5 to 10 weight % more preferably.
[0012] Although the manufacture method of this catalyst is indicated to JP,H1-164437,A, it is desirable to deposit an addition metal ion and to manufacture a catalyst particle from the aqueous solution which contains an addition metal ion like the following methods.
[0013] 1) The sinking-in method : obtain a catalyst particle by evaporation-to-dryness -> grinding -> calcination after adding MgO grains in the aqueous solution containing an addition metal ion like an aluminium nitrate aqueous solution and mixing in it.
Coprecipitation method : 2) A magnesium salt aqueous solution like a magnesium nitrate aqueous solution, The aqueous solution containing an addition metal ion like an aluminium nitrate aqueous solution is mixed, precipitation reagents, such as ammonia, are added to this, magnesium and an addition metal are simultaneously deposited as a hydroxide from an aqueous solution, and a catalyst particle is manufactured by filtration -> desiccation -> grinding -> calcination.
3) Precipitator method : add the aqueous solution containing an addition metal ion, deposit, make the magnesium oxide grain surface carry out the deposition of the hydroxide of an addition metal to the dispersion liquid which distributed magnesium oxide grains, and filter, dry -> calcinate.

[0014] Moreover, when manufacturing a catalyst with precipitation methods, such as the above-mentioned coprecipitation method and a precipitator method, an ion exchange resin can also remove the unnecessary ion (anion) which exists in catalyst slurry after precipitation treatment, and, thereby, the cleaning process after filtration can be skipped or simplified. A reaction can be easily performed under a normal operation procedure and reaction conditions. 80-230 degrees C of reaction temperature is 120-180 degrees C preferably. Moreover, although reaction pressure is based also on reaction temperature, it is 2 - 8atm preferably zero to 20 atm. Although the amount of the catalyst used changes also by the molar ratio of the alkylene oxide and aliphatic alkylester with which a reaction is presented, 0.1 to 20weight % of its amount of aliphatic alkylester is usually desirable, and its 0.5 to 6 weight % is more desirable.

[0015] The reaction of this invention teaches aliphatic alkylester and a catalyst, for example into an autoclave, and after introducing alkylene oxide and making it react under a predetermined temperature and a flow and pressure requirement in nitrogen-gas-atmosphere mind, it can cool and it can be performed by a ** exception carrying out a catalyst. By this reaction, the nonionic surface active agent of the (a) component of this invention is obtained as a condensate with which alkylene oxide entered between the carbon-oxygen bonds of the ester part of aliphatic alkylester R1COOR3.

[0016] (a) Inside of the formula showing a component (R2O) That ethylene oxide, propylene oxide, and butylene oxide are independent or having mixed and added may be shown, and, in mixed addition, block addition or random addition is sufficient. (a) As for the ester type nonionic surface active agent of a component, it is desirable to blend one to 40weight % into a detergent composition, and it is 3 to 30 weight % more preferably.

[0017] (b) as a calcium capture chelate builder of a component Zeolite, crystalline sodium silicate, a nitrilotriacetic acid salt, an ethylenediaminetetraacetic acid salt, Citrate, succinate, tripolyphosphate, polyacrylate, hydroxy polyacrylate, Polyacetal carboxylate, acrylic acid and a maleic anhydride copolymer salt, maleic anhydride and a methyl-vinyl-ether copolymer salt, maleic anhydride and an olefine copolymer salt, and acrylic acid and a methacrylic acid copolymer salt are mentioned. Although these may be used independently, or two or more components may be mixed and they may be used, 3 component concomitant use system of crystal sodium silicate / sodium citrate / polyacrylic acid, and a maleic anhydride copolymer salt is especially suitable for them. (b) Blending one to 40weight % is suitable for the calcium capture chelate builder of a component in a detergent composition, and he is 5 to 30 weight % preferably.

[0018] Although the detergent composition of this invention uses the above-mentioned ester type Nonion activator and a chelating agent as an essential ingredient, it can also add the various auxiliary components commonly used by this kind of detergent composition. As such an auxiliary component, nonionic surface active agents other than the above-mentioned component, As surface active agents, such as an anionic surface active agent and a cationic surface active agent, and alkali chemicals, carbonate, Bicarbonate, silicate, etc. can add silica, a calcium silicate, titanium oxide, etc. as a flow improver as enzymes to pans, such as hypochlorite, percarbonate, and a perboric acid salt, as a bleaching agent at perfume and pigments, such as lipase, protease, cellulase, and amylase, and a pan.

[0019]

[Effect of the Invention] [according to the detergent composition of this invention] by using together (a) ester type nonionic surface active agent and (b) calcium capture chelate builder With low-foaming property, a rinse is easy, and can prevent the trouble by foaming at the time of washing, it is finished with the detergency which was moreover excellent also when higher hardness water was used, and admiration is obtained. Moreover, also when it is considered as a powder-like constituent, the solidification and pellet-ization at the time of preservation are prevented, and it excels in flowability. Therefore, although it is suitable as a cleaning agent for automatic dishwashers, it can be used for other applications, such as a detergent for garments.

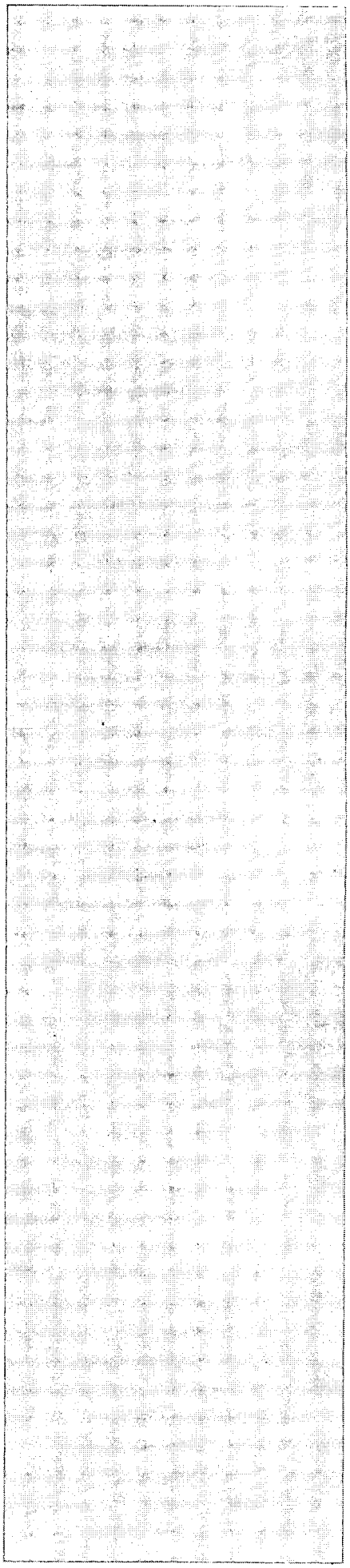
[0020]

[Example]

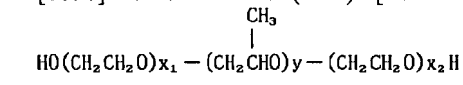
The catalyst was manufactured based on the method of the work example 1 of example Tokuganhei3-63904 of manufacture. MgO It is H2O about 70g. In the dispersion liquid distributed to 525ml, it is aluminum(NO3) 3.9H2O. It is H2O about 30g. The aqueous solution which dissolved in 87g was dropped, aging was performed for 30 minutes, and catalyst slurry was prepared. 263 cc of strong base nature ion exchange resins (SA-20A, Mitsubishi Kasei Corp. make) which pretreated beforehand and were used as OH type were added to this catalyst slurry, it agitated at the room temperature for 1 hour, ion exchange was performed, and NO3- in slurry was removed.

[0021] Catalyst slurry and an ion exchange resin were separated after ion exchange using the 300-micrometer screen. Subsequently, after carrying out spray drying of this catalyst slurry, it calcinated at 950 degrees C for 1 hour, and the aluminum ion addition MgO catalyst was acquired.

[0022] After it taught 22.5g of the above-mentioned catalysts, and lauric acid methyl ester 750g to the autoclave and nitrogen replaced the inside of an autoclave, temperature up was carried out agitating.



Subsequently, maintaining temperature at 160 degrees C and maintaining a pressure to 3atm, ethylene oxide 1852g was introduced and was made to react for about 1 hour. Next, reaction liquid was cooled at 70 degrees C, and the ** exception carried out the catalyst.
[0023] Thus, the average ethylene oxide addition mol number of the obtained lauric acid polyoxyethylene methyl ether was 12. Furthermore, the MgO catalyst by which various metal ions were added similarly was manufactured, and nonionic surface active agent A-D of this invention shown in the following table 1 was manufactured.
[0024]
[Table 1]
Product made from the Nonion addition metal ** Object surface active agent Ion AAlC11H23CO 12OCH3BGaC13H27CO (OC2H4) 14OCH3CInC13H27CO(OC2H4) 10OCH3DTlC15H31CO (OC2H4) 10OCH3ECoC11H23CO(OC2H4) 14OCH3FScC13H27CO(OC2H4) 14OCH3 (OC2H4) G La C15H31CO(OC2H4)14OCH3 H Mn C11H23 CO(OC2H4)18OCH3JAlC11H23CO(OC2H4) 15OCH3KAlC11H23CO(OC2H4)10OCH3L Al C13H27CO(OC2H4)18OCH3 M Al C15H31CO (OC2H4)18OCH3 [0025] After infiltrating into silica the nonionic surface active agent obtained in the example of manufacture of the work-example 1 above-mentioned, powder mixing was carried out to other components, such as a chelating agent and an enzyme, the detergent composition of the presentation shown in after-mentioned Table 2 and 3 was manufactured, and the following performance tests estimated.
[0026] (1) Apply 10g of foaming test egg yolks at the time of washing to one 20cm pan, and set in the National automatic dishwasher NP720 with three pans and four teacups to which a soil has not adhered. Cleaning agent concentration 0.2wt% of the penetrant remover using tap water washes in standard Causses, the door of an automatic dishwasher is opened after washing start 10-minute progress, the foam height from the water surface is measured, and the following bases estimate.
O : foam and they are 30mm or more of 0-10mm**:foaming 10-30mmx:foaming. [0027] (2) Prepare two pans which attached uniformly salad oil / beef tallow / lard / butter (4/3/2/2) 5g as detergency and feeling check dirt of workmanship, and two pans to which dirt is not attached. Cleaning agent concentration 0.2wt% of the wash water using hard water of DH washes 10 degrees of four above-mentioned pans in standard Causses using National automatic dishwasher NP720.
[0028] Four pans are taken out after termination of washing, and about two pans which attached dirt, a visual judgment is performed by the five-step appraisal method which sets for the soil to have come off thoroughly to 5, and sets to 1 what has not fallen at all, and let the average mark be detergency. On the other hand, about two pans to which dirt is not attached, dramatically, a rough deposit sets non-** to 5, and organoleptics are done by the five-step appraisal method which sets owner ** to 1, and a rough deposit is finished and makes the average mark admiration.
[0029] (3) About the fluidity test detergent composition, the angle of repose after saving for one month at a dampproof pillared case was measured and evaluated immediately after carrying out a fine-particles blend. Next, the meaning of the code used in the table and the details of a component are enumerated.
[0030] Nonion activator (** 3) : [Formula 3]



[0031] Acrylic acid and a maleic-anhydride copolymer salt: SOKARANCP45 (made by BASF A.G.)
Stratified Sodium-silicate [Crystalline]: Delta-Na2Si2O5 (made by Hoechst A.G.)
Protease: Rust and it is NAZE 6.0T (made by Novo).
Amylase: Termamyl 60T (made by Novo)
Lipase: RIPORAZE 100T (made by Novo)
Silica: TOKUSHIRU (made by Tokuyama Soda Co., Ltd.)
[0032]
[Table 2]
Fruit ** Example ratio ** Example 1 2 3 4 5 one 2 3 4 5 Presentation (Wt%): Nonionic Surface Active Agent A3 - 1.5 6 - - - - - - Nonionic Surface Active Agent B- 3 1.5- 6 - - - - - Nonion activator (** 3) x1 +x2=30 and y=30- - - - -3 - 1.5 6 -x1+x2=20, y= 25 - - - - - - 3 1.5- 6 Sodium citrate 15 15 15 10 10 15 15 15 1 0 10 Acrylic Acid and Anhydrous Male Inn 3 3 3 3 33 3 3 3 3 Acid Copolymer Salt *1 Crystallinity Stratified Silicic Acid 2 2 0 2 22 2 0 2 Disodium Sodium Hydrogencarbonate 12 12 12 12 12 12 12 12 12 12 Sodium Carbonate 8 8 8 8 88 8 8 8 8 Protease 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 Amylase 1.0 1.0 1.0 1.0 1 .0 1.0 1.0 1.0 1.0 1.0 Lipase 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 Silica 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 Sulfuric Acid NATORIUMUBA ** N SU engine performance : Foaming [at the time of washing] O O O O O O O O ** ** detergency 5 5 5 5 52 2 2 3 Feeling 5 of 3 workmanship 5 5 5 54 4 3 3 3 Angle of repose (degree) : Immediately after 40 40 40 50 50 60 60 60 70 70 One Month After 40 40 40 50 50 70 70 70 70 70 [0033]
[Table 3]

Fruit ** Example 6 7 8 9 Eleven Presentations (Wt%) : 10 Nonionic Surface Active Agent C3 - - - - - nonionic surface active agent D- 3 - - - - Nonionic Surface Active Agent E- - 3 - - - nonionic surface active agent F- - - 3 - - nonionic surface active agent G- - - - 3 - nonionic surface active agent H- - - - - 3 sodium citrate 15 15 15 15 15 15 Acrylic Acid and Anhydrous Male Inn 3 3 3 3 3 3 Acid copolymer salt *1 crystallinity stratified silicic acid 2 2 2 2 2 Disodium Sodium Hydrogencarbonate 12 12 12 12 12 12 Sodium Carbonate 8 8 8 8 8 8 Protease 0.2 0.2 0.2 0.2 0.2 0.2 amylase 1.0 1.0 1.0 1.0 1.0 1.0 lipase 0.1 0.1 0.1 0.1 0.1 0.1 Silica 2.0 2.0 2.0 2.0 2.0 2.0 Sodium sulfate BA RA N SU engine performance: Foaming [at the time of washing] O O O O O O detergency 5 5 5 5 5 Feeling 5 of 5 workmanship 5 5 5 5 Five angles of repose (degree) : Immediately after 40 40 40 40 40 40 One Month after 40 40 40 40 40 40 [0034] Detergent slurry of 45% of solid content was prepared using each component except a nonionic surface active agent, an enzyme, and perfume from the high-bulk-density-detergent-powders presentation shown in the work-example 2 after-mentioned table 4. this detergent slurry -- countercurrent type spray drying -- using the column, with the hot blast temperature of 380 degrees C, it dried so that it might become 5% of moisture, and the spray drying article was obtained.

[0035] The mean particle diameter of 350 micrometers, 0.35g/cc bulk density, 45 angles of repose, and the flowability of this spray drying article were also good. Subsequently, the above-mentioned desiccation article, a nonionic surface active agent, and water were introduced into the continuation kneader (Kurimoto make and KRC kneader #2 type), and precise and uniform kneading food was obtained.

[0036] The perforated plate (10mm in thickness) with 80 bore diameters of 5mmphi was installed in the outlet of this kneader, and kneading food was made into the about 5mm phix10mm cylindrical pellet. this pellet was introduced to the crusher (speed mill ND-10 type and Okada -- elaborate -- Co., Ltd.) with double the amount (bulk density) of 15-degree C cooling air.

[0037] The crusher has a cutter 15cm in length by four steps of crosses, and rotates at 3000rpm, and the screen consists of a punching metal 360 degrees. Three steps of this crusher were connected continuously and the bore diameter of each stage screen was set to one step:3.5mmphi, two step:2mmphi, and : [the 3rd step of] 1.5mmphi. After separating the grains which passed three steps of crushers from cooling air, perfume is sprayed, it has the presentation shown in the after-mentioned table 4, and the detergent grains of 0.8g/cc of bulk density were obtained. The result was good, when the enzyme was added, it was considered as the detergent composition of this invention and detergency was evaluated to this.

[0038]

[Table 4]

Table 4: Presentation loadings component (wt%) C14 of high bulk density detergent powders (No.1) - C18 alpha-olefin sulfonate 10 Alkylbenzene sulfonates (alkyl groups C10-C14) 10 alpha-sulfo fatty acid (C16-C18) methyl ester salt 10 Beef tallow fatty acid salt 2 C12 - a C13 alcoholic ethoxy rate (EOp=20) 2 Nonyl Phenol Ethoxy Rate (EOp=15) C12 - C13 Alcoholic EO-PO Adduct 2 (EO) p= 15, POp=5 1 Coconut fatty acid JIARUKANORU amide 1 Nonionic surface active agent J2 of this invention Alkylamine oxide (C12-C14) 1 A type zeolite (mean particle diameter of 1.2 micrometers) 20 Sodium carbonate 10 JIS No. 1 specific silicate 10 Sodium sulfite 2 protease (a trade name -- "-- rusting -- NAZE 4.0T") 0.5 Amylase (trade name "Termamyl 60G") 0.2 Lipase (Trade Name "RIPORAZE 30T") 0.3 Polyethylene glycol (Mw=6,000) 2 Fluorescence agent (trade name "Tinopal CBS-X") 0.1 Fluorescence agent (trade name "HOWAI tex SKC") 0.2 Fluorescence agent (trade name "HOWAI tex SA") 0.2 Perfume (passage of the following table 5) 0.2 Salt cake Balance (**) EO is ethylene oxide. PO shows propylene oxide and EOp and POp show each addition mol number.

[0039]

[Table 5]

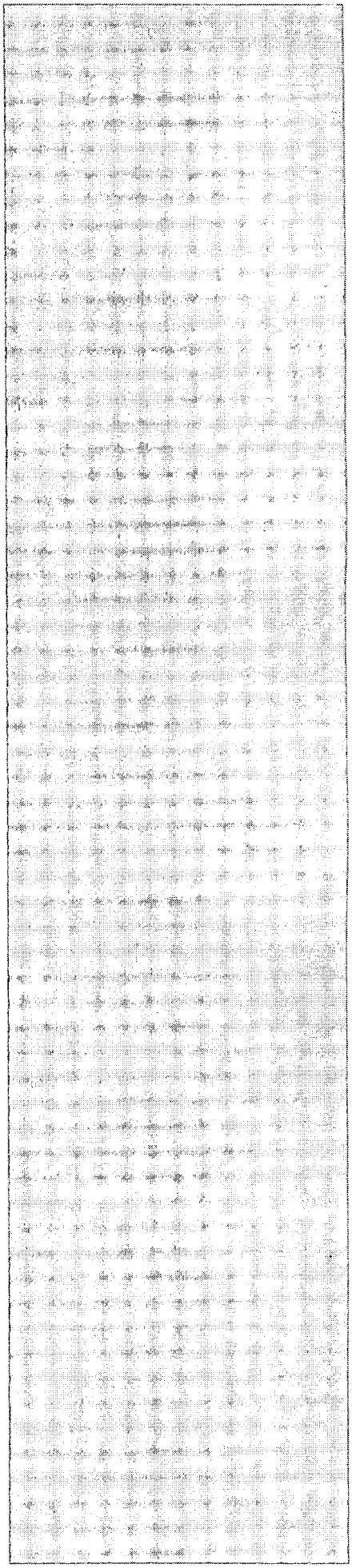


表５：香料組成

成分	配合量（重量部）
３，７－ジメチル－１，６－オクタジエン－３－オール	80
３，７－ジメチル－１，６－オクタジエン－３－イル－アセテート	60
３，７－ジメチル－６－オクテン－１－オール	40
β－フェニルエチルアルコール	50
ｐ－tert－ブチル－α－メチルヒドロシンナミックアルデヒド	70
α－メチル－ｐ－イソプロピルフェニルプロピオンアルデヒド	60
α－ｎ－アミルシンナミックアルデヒド	20
α－ｎ－ヘキシルシンナミックアルデヒド	60
７－アセチル－１，１，３，４，４，６－ヘキサメチルテトラヒドロナフタレン	80
３－（５，５，６－トリメチル－ノルボルナン－２－イル）シクロヘキサン－１－オール	20
ベルトフィックス	30
２－エチル－４－（２，２，３－トリメチル－３－シクロペンテン－１－イル）－２－ブタン－１－オール　10％	10
α，α－ジメチル－ｐ－エチルヒドロシンナミックアルデヒド	40
２，４－ジメチル－３－シクロヘキセン－１－カルボキシアルデヒド	10
cis－３－ヘキセノール	10
２－trans－３，７－ジメチル－２，６－オクタジエン－１－オール	30
ｎ－デシルアルデヒド	5
10－ウンデセン－１－アール	5
メチルノニルアセトアルデヒド	5
４－（４－ヒドロキシ－４－メチルペンチル）－３－シクロヘキセン－１－カルボキシアルデヒド	30
ナフタレン－２－アセチル－１，２，３，４，６，７，８－オクタヒドロ－２，３，８，８－テトラメチル	30
５－（２－メチレン－６，６－ジメチル－シクロヘキシル）－４－ペンテン－３－オン	50
２－メトキシ－４－プロペニルフェノール	20
アリルシクロヘキサンプロピオネート	10
６，７－ジヒドロ－１，１，２，３，３－ペンタメチル－４（５Ｈ）－インダノン	5
ｐ－プロペニルフェニルメチルエーテル	5
メチル－２－アミノベンゾエート	5
レモンオイル	30
オレンジオイル	20
ラバンジンオイル	20
パチュリオイル	10
３，７－ジメチル－２，６－オクタジエナール	30
メチルジヒドロジャスモネート	50

[0040] The detergent grains of No.2 - 9 shown in Table 6 were prepared like work-example 3 work example 2, and the detergent composition of this invention was obtained like the work example 2. When the washing engine performance of these detergent compositions was evaluated, the outstanding detergency as a work example 2 with same all was accepted.

[0041]

[Table 6]

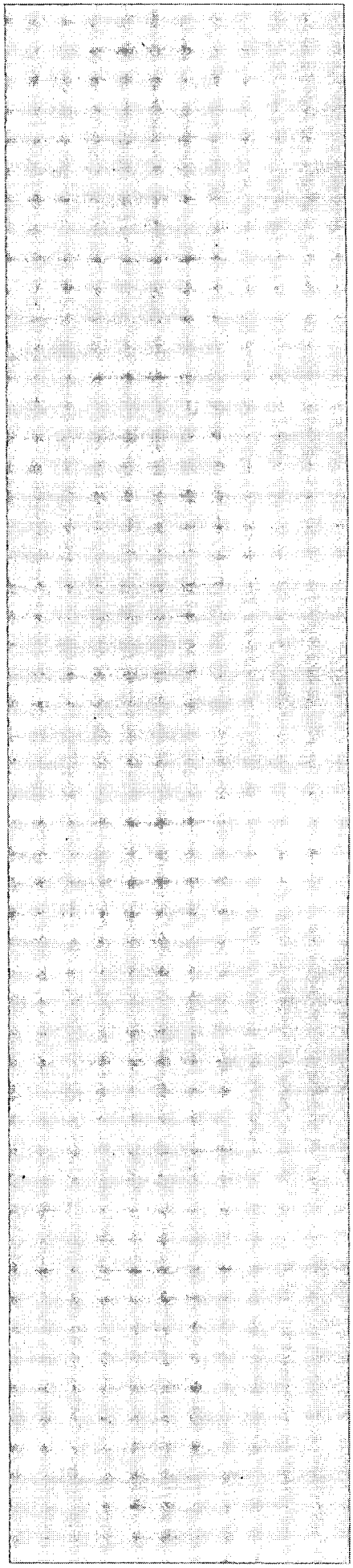


表６：洗剤粒子No.２～９〔表中の数値は配合量(重量部)〕

成分 No.		2	3	4	5	6	7	8	9
アニオン	C_{14}～C_{16} α－オレフィンスルホン酸塩	15	30	－	－	10	10	10	10
	アルキルベンゼンスルホン酸塩(アルキル基C_{10}～C_{14})	15	－	30	－	10	10	10	10
	C_{12}～C_{16}アルキル硫酸塩	－	－	－	30	10	－	－	－
	C_{12}～C_{15}アルキルエトキシ(EOp＝３)硫酸塩	－	－	－	－	－	10	－	－
	α－スルホ脂肪酸(C_{16}～C_{18})メチルエステル塩	－	－	－	－	－	－	10	－
	C_{12}～C_{14}アルキルスルホン酸塩	－	－	－	－	－	－	－	－
	牛脂脂肪酸塩	2	2	2	2	2	2	2	10
ノニオン	C_{12}～C_{13}アルコールエトキシレート(EOp＝20)	2	2	2	2	2	2	2	2
	ノニルフェノールエトキシレート(EOp＝15)	2	2	2	2	2	2	2	2
	C_{12}～C_{15}アルコールEO･PO付加体(EOp＝15,POp＝５)	1	1	1	1	1	1	1	1
	ヤシ脂肪酸ジアルカノールアミド	1	1	1	1	1	1	1	1
	アルキルアミンオキシド(C_{10}～C_{14})	1	1	1	1	1	1	1	1
	本発明のノニオン界面活性剤K	3	3	3	3	3	3	3	3
ビルダー	A型ゼオライト(平均粒径1.2μm)	20	20	20	20	20	20	20	20
	炭酸ナトリウム	10	10	10	10	10	10	10	10
	JIS１号珪酸ナトリウム	10	10	10	10	10	10	10	10
酵素	プロテアーゼ(商品名「サビナーゼ4.0T」)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	アミラーゼ(商品名「ターマミル60G」)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	リパーゼ(商品名「リポラーゼ30T」)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
その他添加剤	ポリエチレングリコール(Mw＝6,000)	2	2	2	2	2	2	2	2
	亜硫酸ナトリウム	2	2	2	2	2	2	2	2
	蛍光剤(商品名「チノパール CBS-X」)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	蛍光剤(商品名「ホワイテックス SKC」)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	蛍光剤(商品名「ホワイテックス SA」)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	香料(実施例２の表３の通り)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	芒硝	5	5	5	5	5	5	5	5

[0042] The detergent grains of No.11 - 16 shown in Table 7 were prepared like work-example 4 work example 2, and the detergent composition of this invention was obtained like the work example 2. When the washing engine performance of these detergent compositions was evaluated, the outstanding detergency as a work example 2 with same all was accepted.

[0043]

[Table 7]

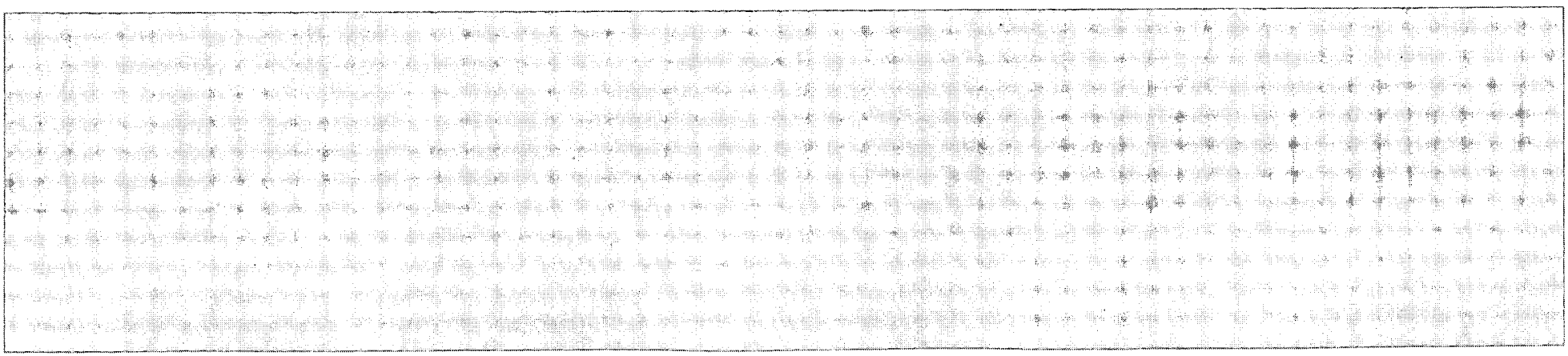


表7：洗剤粒子No.11～16（噴中の数値は配合量（重量部））

成分	No.	11	12	13	14	15	16
アニオン	C_{12}～C_{16} α－オレフィンスルホン酸塩	10	10	10	10	10	10
	アルキルベンゼンスルホン酸塩（アルキル基C_{10}～C_{14}）	10	10	10	10	10	10
	α－スルホ脂肪酸塩（C_{14}～C_{18}）メチルエステル塩	10	10	10	10	10	10
	牛脂脂肪酸塩	2	2	2	2	2	2
ノニオン	C_{12}～C_{13}アルコールエトキシレート（EOp＝20）	5	—	—	—	—	—
	ノニルフェノールエトキシレート（EOp＝15）	—	5	—	—	—	—
	C_{12}～C_{13}アルコールEO・PO付加体（EOp＝15，POp＝5）	—	—	5	—	—	—
	ヤシ脂肪酸ジアルカノールアミド	—	—	—	5	—	—
	ショ糖脂肪酸（C_{12}～C_{14}）エステル	—	—	—	—	5	—
	アルキルアミンオキシド（C_{10}～C_{14}）	—	—	—	—	—	5
	本発明のノニオン界面活性剤C	3	3	3	3	3	3
ビルダー	A型ゼオライト（平均粒径1.2μm）	20	20	20	20	20	20
	炭酸ナトリウム	10	10	10	10	10	10
	JIS1号珪酸ナトリウム	10	10	10	10	10	10
酵素	プロテアーゼ（商品名「サビナーゼ4.0T」）	0.5	0.5	0.5	0.5	0.5	0.5
	アミラーゼ（商品名「ターマミル60G」）	0.2	0.2	0.2	0.2	0.2	0.2
	リパーゼ（商品名「リポラーゼ30T」）	0.3	0.3	0.3	0.3	0.3	0.3
その他添加剤	ポリエチレングリコール（Mw＝6,000）	2	2	2	2	2	2
	亜硫酸ナトリウム	2	2	2	2	2	2
	蛍光剤（商品名「チノパール CBS-X」）	0.1	0.1	0.1	0.1	0.1	0.1
	蛍光剤（商品名「ホワイテックス SKC」）	0.2	0.2	0.2	0.2	0.2	0.2
	蛍光剤（商品名「ホワイテックス SA」）	0.2	0.2	0.2	0.2	0.2	0.2
	香料（実施例2の表3の通り）	0.2	0.2	0.2	0.2	0.2	0.2
	芒硝	5	5	5	5	5	5

[0044] How to spray the Nonion activator by a ** form mixer, and add and carry out agitation granulation of the fines zeolite 2% to the spray drying article obtained like work-example 5 work example 2, The detergent grains of No.21 - 30 shown in Table 8 were prepared, and the detergent composition of 0.75g/cc of bulk density of this invention was obtained like the work example 2. When the washing engine performance of these detergent compositions was evaluated, the outstanding detergency as a work example 2 with same all was accepted.

[0045]

[Table 8]

表８：洗剤粒子No.21～30〔表中の数値は配合量(重量部)〕

成分 No.		21	22	23	24	25	26	27	28	29	30
アニオン	C_{14}～C_{18}α－オレフィンスルホン酸塩	10	10	10	10	10	10	10	10	10	10
	アルキルベンゼンスルホン酸塩(アルキル基C_{10}～C_{14})	10	10	10	10	10	10	10	10	10	10
	α－スルホ脂肪酸(C_{16}～C_{18})メチルエステル塩	10	10	10	10	10	10	10	10	10	10
	牛脂脂肪酸塩	2	2	2	2	2	2	2	2	2	2
ノニオン	C_{12}～C_{13}アルコールエトキシレート(EOp＝20)	2	2	2	2	2	2	2	2	2	2
	ノニルフェノールエトキシレート(EOp＝15)	2	2	2	2	2	2	2	2	2	2
	C_{12}～C_{13}アルコールEO･PO付加体(EOp＝15,POp＝５)	1	1	1	1	1	1	1	1	1	1
	ヤシ脂肪酸ジアルカノールアミド	1	1	1	1	1	1	1	1	1	1
	アルキルアミンオキシド(C_{12}～C_{14})	1	1	1	1	1	1	1	1	1	1
	本発明のノニオン界面活性剤D	3	3	3	3	3	3	3	3	3	3
ビルダー	A型ゼオライト(平均粒径1.2μm)	20	10	10	10	10	10	10	10	10	20
	クエン酸ナトリウム	－	10	－	－	－	－	－	－	－	－
	ニトリロトリ酢酸３ナトリウム	－	－	10	－	－	－	－	－	－	－
	エチレンジアミン４酢酸４ナトリウム	－	－	－	10	－	－	－	－	－	－
	ヒドロキシエタンジホスホン酸ナトリウム	－	－	－	－	10	－	－	－	－	－
	ポリアクリル酸ナトリウム(Mw＝5,000)	－	－	－	－	－	10	－	－	－	－
	マレイン酸/エチレン共重合体(Mw＝10,000)	－	－	－	－	－	－	10	－	－	－
	ヒドロキシポリアクリル酸ナトリウム(Mw＝10,000)	－	－	－	－	－	－	－	10	－	－
	α-スルホ脂肪酸(C_{16}～C_{18})ジナトリウム	－	－	－	－	－	－	－	－	10	－
	炭酸ナトリウム	10	10	10	10	10	10	10	10	10	5
	JIS１号珪酸ナトリウム	10	10	10	10	10	10	10	10	10	10
	セスキ炭酸ナトリウム	－	－	－	－	－	－	－	－	－	5
酵素	プロテアーゼ(商品名「サビナーゼ4.0T」)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	アミラーゼ(商品名「ターマミル60G」)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	リパーゼ(商品名「リポラーゼ30T」)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
その他添加剤	ポリエチレングリコール(Mw＝6,000)	2	2	2	2	2	2	2	2	2	2
	亜硫酸ナトリウム	2	2	2	2	2	2	2	2	2	2
	蛍光剤(商品名「チノパール CBS-X」)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	蛍光剤(商品名「ホワイテックス SKC」)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	蛍光剤(商品名「ホワイテックス SA」)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	香料(実施例２の表３の通り)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	芒硝	5	5	5	5	5	5	5	5	5	5

[0046] The detergent grains of No.31 - 39 shown in Table 9 were prepared like work-example 6 work example 2, and the detergent composition of this invention was obtained like the work example 2. When the washing engine performance of these detergent compositions was evaluated, the outstanding detergency as a work example 2 with same all was accepted.

[0047]

[Table 9]

表９：洗剤粒子No.31～39［表中の数値は配合量(重量部)］

成分 No.		31	32	33	34	35	36	37	38	39
アニオン	C_{14}～C_{18} α－オレフィンスルホン酸塩	10	10	10	10	10	10	10	10	10
	アルキルベンゼンスルホン酸塩(アルキル基C_{10}～C_{14})	10	10	10	10	10	10	10	10	10
	α－スルホ脂肪酸(C_{16}～C_{18})メチルエステル塩	10	10	10	10	10	10	10	10	10
	牛脂脂肪酸塩	2	2	2	2	2	2	2	2	2
ノニオン	C_{12}～C_{18}アルコールエトキシレート(EOp＝20)	2	2	2	2	2	2	2	2	2
	ノニルフェノールエトキシレート(EOp＝15)	2	2	2	2	2	2	2	2	2
	C_{12}～C_{18}アルコールEO･PO付加体(EOp＝15,POp＝5)	1	1	1	1	1	1	1	1	1
	ヤシ脂肪酸ジアルカノールアミド	1	1	1	1	1	1	1	1	1
	アルキルアミンオキシド(C_{12}～C_{14})	1	1	1	1	1	1	1	1	1
	本発明のノニオン界面活性剤E	5	5	5	5	5	5	5	5	5
ビルダー	A型ゼオライト(平均粒径1.2μm)	20	20	20	20	20	20	20	20	20
	炭酸ナトリウム	10	10	10	10	10	10	10	10	10
	JIS１号珪酸ナトリウム	10	10	10	10	10	10	10	10	10
漂白剤	過炭酸ナトリウム	10	－	5	10	10	10	－	－	－
	過硼酸ナトリウム	－	10	5	－	－	－	10	10	10
	過硫酸カリウム(商品名「オキソン」)	－	－	4	－	－	－	－	－	－
	テトラアセチルエチレンジアミン	－	－	－	3	－	－	3	－	－
	テトラメチルピペリジン塩酸塩	－	－	－	－	3	－	－	3	－
	イソノナノイルオキシベンゼンスルホン酸塩	－	－	－	－	－	3	－	－	3
酵素	プロテアーゼ(商品名「サビナーゼ4.0T」)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	アミラーゼ(商品名「ターマミル60G」)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	リパーゼ(商品名「リポラーゼ30T」)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
その他添加剤	ポリエチレングリコール(Mw＝6,000)	2	2	2	2	2	2	2	2	2
	亜硫酸ナトリウム	2	2	2	2	2	2	2	2	2
	蛍光剤(商品名「チノパール CBS-X」)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	蛍光剤(商品名「ホワイテックス SKC」)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	蛍光剤(商品名「ホワイテックス SA」)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	香料(実施例２の表３の通り)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	芒硝	5	5	5	5	5	5	5	5	5

[0048] The detergent grains of No.41 - 44 shown in Table 10 were prepared like work-example 7 work example 2, and the detergent composition of this invention was obtained. When the washing engine performance of these detergent compositions was evaluated, the outstanding detergency as a work example 2 with same all was accepted. [0049]

[Table 10]

表１０：洗剤粒子No.41～44〔表中の数値は配合量(重量部)〕

	成分 No.	41	42	43	44
アニオン	C_{10}～C_{18} α－オレフィンスルホン酸塩	10	10	10	10
	アルキルベンゼンスルホン酸塩(アルキル基C_{10}～C_{14})	10	10	10	10
	α－スルホ脂肪酸(C_{16}～C_{18})メチルエステル塩	10	10	10	10
	牛脂脂肪酸塩	2	2	2	2
ノニオン	C_{12}～C_{13}アルコールエトキシレート(EOp＝20)	2	2	2	2
	ノニルフェノールエトキシレート(EOp＝15)	2	2	2	2
	C_{12}～C_{13}アルコールEO･PO付加体(EOp＝15,POp＝５)	1	1	1	1
	ヤシ脂肪酸ジアルカノールアミド	1	1	1	1
	アルキルアミンオキシド(C_{12}～C_{14})	1	1	1	1
	本発明のノニオン界面活性剤Ｆ	3	3	3	3
ビルダー	Ａ型ゼオライト(平均粒径1.2μm)	20	20	20	20
	炭酸ナトリウム	10	10	10	10
	JIS１号珪酸ナトリウム	10	10	10	10
酵素	プロテアーゼ(商品名「サビナーゼ4.0T」)	0.5	0.5	0.5	0.5
	アミラーゼ(商品名「ターマミル60G」)	－	0.5	－	－
	セルラーゼ(商品名「セルザイムSP-227」)	－	－	0.5	－
	リパーゼ(商品名「リポラーゼ30T」)	－	－	－	0.5
その他添加剤	ポリエチレングリコール(Mw＝6,000)	2	2	2	2
	亜硫酸ナトリウム	2	2	2	2
	蛍光剤(商品名「チノパール CBS-X」)	0.1	0.1	0.1	0.1
	蛍光剤(商品名「ホワイテックス SKC」)	0.2	0.2	0.2	0.2
	蛍光剤(商品名「ホワイテックス SA」)	0.2	0.2	0.2	0.2
	香料(実施例２の表３の通り)	0.2	0.2	0.2	0.2
	芒硝	5	5	5	5

[0050] preparing the detergent grains of No.51 - 58 shown in Table 11 like work-example 8 work example 1, and receiving detergent grains in SKS-6 (the Hoechst A.G. make, crystalline stratified sodium silicate) -- respectively -- 5 weight % -- or it added 10weight % and the detergent composition of this invention was obtained. When the washing engine performance of these detergent compositions was evaluated, the outstanding detergency as a work example 2 with same all was accepted.

[0051]

[Table 11]

重量部)〕 No.	51	52	53	54	55	56	57	58
～C_{14})	10	10	10	10	10	10	10	10
塩	10	10	10	10	10	10	10	10
	2	2	2	2	2	2	2	2
)	2	2	2	2	2	2	2	2
	2	2	2	2	2	2	2	2
p＝5)	1	1	1	1	1	1	1	1
	1	1	1	1	1	1	1	1
	1	1	1	1	1	1	1	1
	3	3	3	3	3	3	3	3
	20	20	20	20	20	20	20	20
	10	10	10	10	10	10	10	10
	10	10	10	10	10	10	10	10
	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	－	2	－	－	－	－	－	－
	2	2	2	2	2	2	2	2
	－	－	2	2	－	－	－	－
	－	－	－	－	2	－	－	－
リド	－	－	－	－	－	5	－	2
	－	－	－	－	－	－	5	5
	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	5	5	5	5	5	5	5	5

表11：洗剤粒子No.51～58（表中の数値は配合量（重量分

成		
アニオン	C_{14}～C_{18} α－オレフィンスルホン酸塩	
	アルキルベンゼンスルホン酸塩（アルキル基C_{10}～	
	α－スルホ脂肪酸（C_{16}～C_{18}）メチルエステル塩	
	牛脂脂肪酸塩	
ノニオン	C_{12}～C_{13}アルコールエトキシレート（EOp＝20）	
	ノニルフェノールエトキシレート（EOp＝15）	
	C_{12}～C_{13}アルコールEO・PO付加体（EOp＝15，POp＝	
	ヤシ脂肪酸ジアルカノールアミド	
	アルキルアミンオキシド（C_{12}～C_{14}）	
	本発明のノニオン界面活性剤G	
ビルダー	A型ゼオライト（平均粒径1.2μm）	
	炭酸ナトリウム	
	JIS1号珪酸ナトリウム	
酵素	プロテアーゼ（商品名「サビナーゼ4.0T」）	
	アミラーゼ（商品名「ターマミル60G」）	
	リパーゼ（商品名「リポラーゼ30T」）	
その他添加剤	ポリエチレングリコール（Mw＝6,000）	
	蛍光剤（商品名「イエローストーンJ」）	
	カルボキシメチルセルロース	
	ポリビニルアルコール（Mw＝20,000）	
	パラトルエンスルホン酸塩	
	ジ硬化牛脂アルキルジメチルアンモニウムクロリド	
	スメクタイト（商品名「イエローストーンJ」）	
	蛍光剤（商品名「チノパール CBS-X」）	
	蛍光剤（商品名「ホワイテックス SKC」）	
	蛍光剤（商品名「ホワイテックス SA」）	
	香料（実施例2の表3の通り）	
	亡硝	

[0052] Detergent slurry of 45% of solid content was prepared using each component excluding an enzyme from the spray drying detergent grain presentation shown in work-example 9 table 12. this detergent slurry -- countercurrent type spray drying -- using the column, with the hot blast temperature of 380 degrees C, it dried so that it might become 5% of moisture, and spray drying detergent grains were obtained.

[0053] The mean particle diameter of 350 micrometers, 0.35g/cc bulk density, 45 angles of repose, and the flowability of this spray drying detergent grain were also good. When the enzyme was added to this, it was considered as the detergent composition of this invention and detergency was evaluated, the outstanding washing engine performance was shown.

[0054]

[Table 12]

Table 12: Presentation loadings component (wt%) C14 of detergent grains (No.1) - C18 alpha-olefin sulfonate 10 Alkylbenzene sulfonates (alkyl groups C10-C14) 5 alpha-sulfo fatty acid (C16-C18) methyl ester salt 5 Beef tallow fatty acid salt 2 C12 - a C13 alcoholic ethoxy rate (EOp=20) 2 Nonyl Phenol Ethoxy Rate (EOp=15) 1 C12 - C13 Alcoholic EO-PO Adduct (EOp=15, POp=5) 1 Nonionic surface active agent A2 of this invention A type zeolite (mean particle diameter of 1.2 micrometers) 15 sodium carbonate 5 JIS No. 1 specific silicate 10 Sodium sulfite 1 Protease (a trade name -- "-- rusting -- NAZE 4.0T") 0.3 Amylase (trade name "Termamyl 60G") 0.1 [cellulase (trade name "cell ZAIMU SP-227")] 0.1 Lipase (Trade Name "RIPORAZE 30T") 0.3 Polyethylene Glycol (Mw=6,000) 1 Fluorescence agent (trade name "Tinopal CBS-X") 0.1 Fluorescence agent (trade name "HOWAI tex SKC") 0.2 Fluorescence agent (trade name "HOWAI tex SA") 0.2 Perfume (passage of Table 5 of a work example 2) 0.2 Salt cake Balance [0055] The detergent grains of No.2 - 8 shown in Table 13 were prepared like work-example 10 work example 9, and the detergent composition of this invention was obtained. When the washing engine performance of these detergent compositions was evaluated, the outstanding detergency as a work example 9 with same all was accepted.

[0056]

[Table 13]

表１３：洗剤粒子No.２～８（表中の数値は配合量（重量％））

成分	No.	2	3	4	5	6	7	8
アニオン	C_{14}～C_{18}α－オレフィンスルホン酸塩	10	10	10	10	10	10	10
	アルキルベンゼンスルホン酸塩（アルキル基C_{10}～C_{14}）	10	5	5	5	5	5	5
	C_{12}～C_{16}アルキル硫酸塩	–	5	–	–	–	–	–
	C_{12}～C_{15}アルキルエトキシ（EOp＝３）硫酸塩	–	–	5	–	–	–	–
	α－スルホ脂肪酸（C_{16}～C_{18}）メチルエステル塩	–	–	–	–	5	5	5
	C_{12}～C_{14}アルキルスルホン酸塩	–	–	–	5	–	–	–
	牛脂脂肪酸塩	2	2	2	2	2	2	2
ノニオン	C_{12}～C_{13}アルコールエトキシレート（EOp＝10）	2	2	2	2	2	–	–
	ノニルフェノールエトキシレート（EOp＝15）	1	1	1	1	–	2	–
	C_{12}～C_{13}アルコールEO･PO付加体（EOp＝15,POp＝５）	1	1	1	1	–	–	2
	本発明のノニオン界面活性剤Ｈ	3	3	3	3	3	3	3
ビルダー	A型ゼオライト（平均粒径1.2μm）	15	15	15	15	15	15	15
	炭酸ナトリウム	5	5	5	5	5	5	5
	JIS１号珪酸ナトリウム	10	10	10	10	10	10	10
酵素	プロテアーゼ（商品名「サビナーゼ4.0T」）	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	アミラーゼ（商品名「ターマミル60G」）	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	セルラーゼ（商品名「セルザイムSP-227」）	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	リパーゼ（商品名「リポラーゼ30T」）	0.3	0.3	0.3	0.3	0.3	0.3	0.3
その他	ポリエチレングリコール（Mw＝6,000）	1	1	1	1	1	1	1
	亜硫酸ナトリウム	1	1	1	1	1	1	1
塗加剤	蛍光剤（商品名「チノパール CBS-X」）	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	蛍光剤（商品名「ホワイテックス SKC」）	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	蛍光剤（商品名「ホワイテックス SA1」）	0.2	0.2	0.2	0.2	0.2	0.2	0.2
香料	香料（実施例２の表３の通り）	0.1	0.1	0.1	0.1	0.1	0.1	0.1
パランス	芒硝							

[0057] The detergent grains of No.9 - 21 shown in Table 14 were prepared like work-example 11 work example 9, and the detergent composition of this invention was obtained. When the washing engine performance of these detergent compositions was evaluated, the outstanding detergency as a work example 9 with same all was accepted.

[0058]

[Table 14]

表１４：洗剤粒子No.９～21〔表中の数値は配合量(重量%)〕

	成分 No.	9	10	11	12	13	14	15	16	17	18	19	20	21
アニオン	C_{16}～C_{18} α－オレフィンスルホン酸塩	10	10	10	10	10	10	10	10	10	10	10	10	10
	アルキルベンゼンスルホン酸塩(アルキル基C_{10}～C_{14})	5	5	5	5	5	5	5	5	5	5	5	5	5
	α－スルホ脂肪酸(C_{16}～C_{18})メチルエステル塩	5	5	5	5	5	5	5	5	5	5	5	5	5
	牛脂脂肪酸塩	2	2	2	2	2	2	2	2	2	2	2	2	2
ノニオン	C_{12}～C_{13}アルコールエトキシレート(EOp＝20)	2	2	2	2	2	2	2	2	2	2	2	2	2
	ノニルフェノールエトキシレート(EOp＝15)	1	1	1	1	1	1	1	1	1	1	1	1	1
	C_{12}～C_{13}アルコールEO･PO付加体(EOp＝15,POp＝５)	1	1	1	1	1	1	1	1	1	1	1	1	1
	本発明のノニオン界面活性剤L	3	3	3	3	3	3	3	3	3	3	3	3	3
ビルダー	A型ゼオライト(平均粒径1.2μm)	15	10	10	10	10	10	10	15	15	15	15	15	15
	クエン酸ナトリウム	－	5	－	－	－	－	－	－	－	－	－	－	－
	ニトリロトリ酢酸３ナトリウム	－	－	5	－	－	－	－	－	－	－	－	－	－
	エチレンジアミン４酢酸４ナトリウム	－	－	－	5	－	－	－	－	－	－	－	－	－
	ポリアクリル酸ナトリウム(Mw＝5,000)	－	－	－	－	5	－	－	－	－	－	－	－	－
	マレイン酸/エチレンジ重合体(Mw＝10,000)	－	－	－	－	－	5	－	－	－	－	－	－	－
	α-スルホ脂肪酸(C_{16}～C_{18})ジナトリウム	－	－	－	－	－	－	5	－	－	－	－	－	－
	炭酸ナトリウム	5	5	5	5	5	5	5	5	5	5	5	5	5
	JIS１号珪酸ナトリウム	10	10	10	10	10	10	10	10	10	10	10	10	10
漂白剤	過炭酸ナトリウム	－	－	－	－	－	－	－	7	－	5	7	－	－
	過硼酸ナトリウム	－	－	－	－	－	－	－	－	7	5	－	7	7
	テトラアセチルエチレンジアミン	－	－	－	－	－	－	－	－	－	－	－	2	－
	テトラメチルピペリジン塩酸塩	－	－	－	－	－	－	－	－	－	－	2	－	2
酵素	プロテアーゼ(商品名「サビナーゼ4.0T」)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	アミラーゼ(商品名「ターマミル60G」)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	セルラーゼ(商品名「セルザイムSP-227」)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	リパーゼ(商品名「リポラーゼ30T」)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
その他添加剤	ポリエチレングリコール(Mw＝6,000)	1	1	1	1	1	1	1	1	1	1	1	1	1
	亜硫酸ナトリウム	1	1	1	1	1	1	1	1	1	1	1	1	1
	蛍光剤(商品名「チノパール CBS-X」)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	蛍光剤(商品名「ホワイテックス SKC」)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	蛍光剤(商品名「ホワイテックス SA」)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	香料(実施例２の表３の通り)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	芒硝	パラン ス												

[0059] preparing the detergent grains of No.22 - 31 shown in Table 15 like work-example 12 work example 9, and receiving detergent grains in an enzyme and SKS-6 (the Hoechst A.G. make, crystalline stratified sodium silicate) -- respectively -- 5 weight % -- or it added 10weight % and the detergent composition of this invention was obtained. When the washing engine performance of these detergent compositions was evaluated, the outstanding detergency as a work example 9 with same all was accepted.

[0060]

[Table 15]

表１５：洗剤粒子No.22～31〔表中の数値は配合量(重量％)〕

成分	No.	22	23	24	25	26	27	28	29	30	31
アニオン	C_{14}～C_{18} α－オレフィンスルホン酸塩	10	10	10	10	10	10	10	10	10	10
	アルキルベンゼンスルホン酸塩(アルキル基C_{10}～C_{14})	5	5	5	5	5	5	5	5	5	5
	α－スルホ脂肪酸(C_{16}～C_{18})メチルエステル塩	5	5	5	5	5	5	5	5	5	5
	牛脂脂肪酸塩	2	2	2	2	2	2	2	2	2	2
ノニオン	C_{12}～C_{13}アルコールエトキシレート(EOp＝20)	2	2	2	2	2	2	2	2	2	2
	ノニルフェノールエトキシレート(EOp＝15)	1	1	1	1	1	1	1	1	1	1
	C_{12}～C_{13}アルコールEO･PO付加体(EOp＝15,POp＝５)	1	1	1	1	1	1	1	1	1	1
	本発明のノニオン界面活性剤M	2	2	2	2	2	2	2	2	2	2
ビルダー	A型ゼオライト(平均粒径1.2μm)	15	15	15	15	15	15	15	15	15	15
	炭酸ナトリウム	5	5	5	5	5	5	5	5	5	5
	JIS１号珪酸ナトリウム	10	10	10	10	10	10	10	10	10	10
酵素	プロテアーゼ(商品名「サビナーゼ4.0T」)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	アミラーゼ(商品名「ターマミル60G」)	－	0.3	－	－	0.1	0.1	0.1	0.1	0.1	0.1
	セルラーゼ(商品名「セルザイムSP-227」)	－	－	0.3	－	0.1	0.1	0.1	0.1	0.1	0.1
	リパーゼ(商品名「リポラーゼ30T」)	－	－	－	0.3	0.3	0.3	0.3	0.3	0.3	0.3
その他添加剤	ポリエチレングリコール(Mw＝6,000)	1	1	1	1	－	1	－	－	－	－
	亜硫酸ナトリウム	1	1	1	1	1	1	1	1	1	1
	カルボキシメチルセルロース	－	－	－	－	－	－	1	－	－	－
	パラトルエンスルホン酸塩	－	－	－	－	－	－	－	1	－	－
	ジ硬化牛脂アルキルジメチルアンモニウムクロリド	－	－	－	－	－	－	－	－	5	－
	スメクタイト(商品名「イエローストーン」)	－	－	－	－	－	－	－	－	－	5
	蛍光剤(商品名「チノパール CBS-X」)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	蛍光剤(商品名「ホワイテックス SKC」)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	蛍光剤(商品名「ホワイテックス SA」)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	香料(実施例２の表３の通り)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	芒硝	パラン ス									